Partial FCC Test Report

Report No.:	RF171204C20-2
FCC ID:	NKS-PD5-WIFI
Test Model:	PD5
Received Date:	Dec. 04, 2017
Test Date:	Dec. 16, 2017 ~ Dec. 19, 2017
Issued Date:	Dec. 22, 2017
Applicant:	PeopleNet Communications Corporation
Address:	4400 Baker Road, Minnetonka, MN 55343, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location (1):	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF171204C20-2	Original Release	Dec. 22, 2017

1 Certificate of Conformity

Product:	Tablet
Brand:	PeopleNet
Test Model:	PD5
Sample Status:	Production Unit
Applicant:	PeopleNet Communications Corporation
Test Date:	Dec. 16, 2017 ~ Dec. 19, 2017
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Vera Huang , **Date:** Dec. 22, 2017

Vera Huang / Specialist

Approved by : , **Date:** Dec. 22, 2017

Dylan Chiou / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	**Test Item**	**Result**	**Remarks**
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -8.29 dB at 0.15782 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -6.65 dB at 4824 MHz.
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.247(a)(2)	6 dB Bandwidth	N/A	Refer to Note
---	Occupied Bandwidth Measurement	N/A	Refer to Note
15.247(b)	Conducted power	N/A	Refer to Note
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	Pass	No antenna connector is used.

Note: Test items for AC Power Conducted Emission and Radiated Emissions were performed for this report. For other test data, please refer to 7layers Test Report Reference: MDE_UBLOX_1551_FCCc_Rev1 for module (Brand: u-blox, Model: EMMY-W161).

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Tablet
Brand	PeopleNet
Test Model	PD5
Status of EUT	Production Unit
Power Supply Rating	3.6 Vdc (battery)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to MCS7
Operating Frequency	2412 ~ 2462 MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Antenna Type	PIFA antenna with 1.1 dBi gain
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT provides one completed transmitter and one receiver.

Modulation Mode	Tx Function
802.11b	1TX
802.11g	1TX
802.11n (HT20)	1TX
802.11n (HT40)	1TX

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Battery	SANYO	UR18650A(Y)-SECT-34	3.6 Vdc, 2150 mAh
BT/WLAN Module	u-blox	EMMY-W161	--

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437		

7 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	7	2442
4	2427	8	2447
5	2432	9	2452
6	2437		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To			Description
	RE≥1G	RE<1G	PLC	
-	√	√	√	-

Where **RE≥1G:** Radiated Emission above 1 GHz **RE<1G:** Radiated Emission below 1 GHz
PLC: Power Line Conducted Emission

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.
NOTE: "-"means no effect.

Radiated Emission Test (Above 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

Radiated Emission Test (Below 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	1	DSSS	DBPSK	1.0

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	1	DSSS	DBPSK	1.0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jisyong Wang
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang

3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

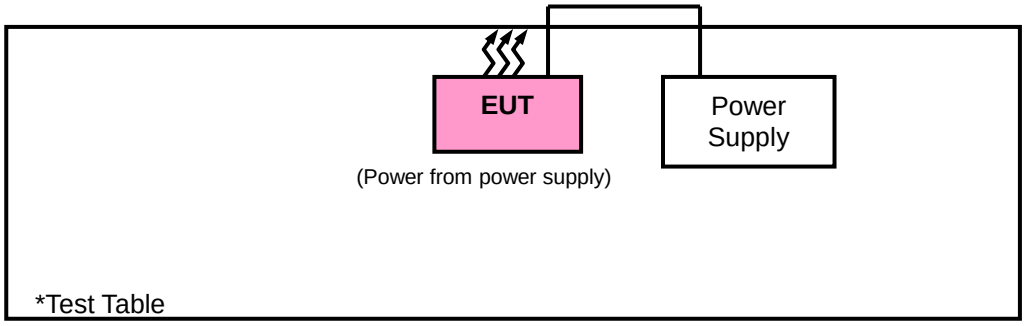
No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	DC Power Supply	Topward	33010D	807748	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)
558074 D01 DTS Meas Guidance v04
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Feb. 17, 2017	Feb. 16, 2018
Spectrum Analyzer Agilent	N9010A	MY52220314	Nov. 24, 2017	Nov. 23, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	100115	Nov. 23, 2017	Nov. 22, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 06, 2017	Dec. 05, 2018
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Dec. 12, 2017	Dec. 11, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 01, 2017	Nov. 30, 2018
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 23, 2017	Jun. 22, 2018
Loop Antenna	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier EMCI	EMC001340	980201	Nov. 01, 2017	Oct. 30, 2018
Bluetooth Tester	CBT	100946	Jul. 29, 2016	Jul. 28, 2018
Preamplifier EMCI	EMC 012645	980115	Oct. 20, 2017	Oct. 19, 2018
Preamplifier EMCI	EMC 184045	980116	Oct. 21, 2016	Oct. 20, 2017
Preamplifier EMCI	EMC 330H	980112	Oct. 21, 2016	Oct. 20, 2017
Power Meter Anritsu	ML2495A	1012010	Aug. 15, 2017	Aug. 14, 2018
Power Sensor Anritsu	MA2411B	1315050	Aug. 15, 2017	Aug. 14, 2018
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8000&3000	140811+170717	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 20, 2017	Oct. 19, 2018
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 10.

3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.

4. The IC Site Registration No. is IC7450F-10.

4.1.3 Test Procedures

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

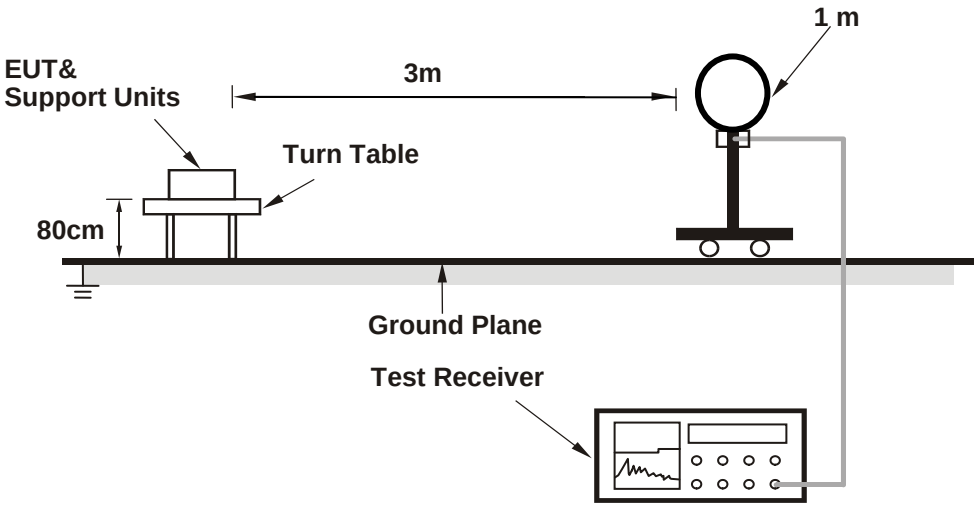
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 KHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1/T for Average (Duty cycle < 98 %) detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

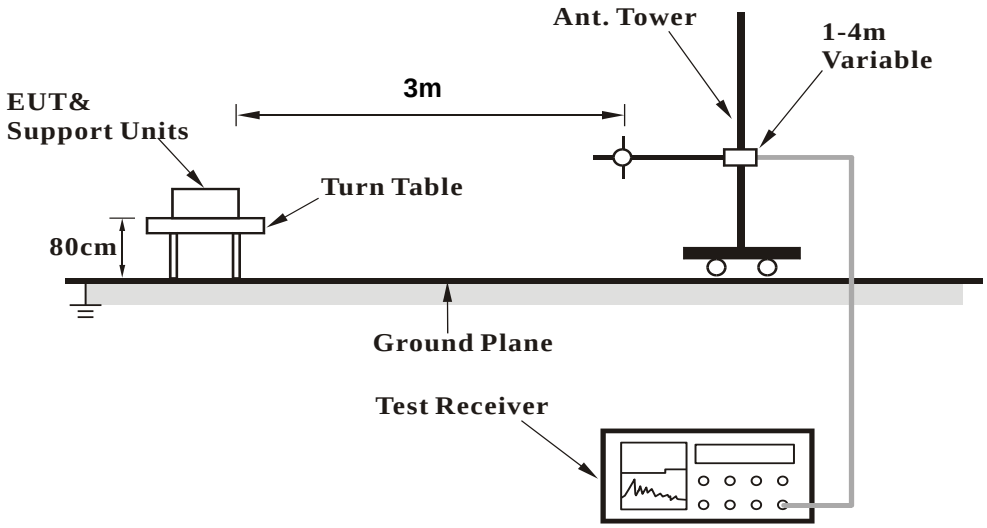
No deviation.

4.1.5 Test Set Up

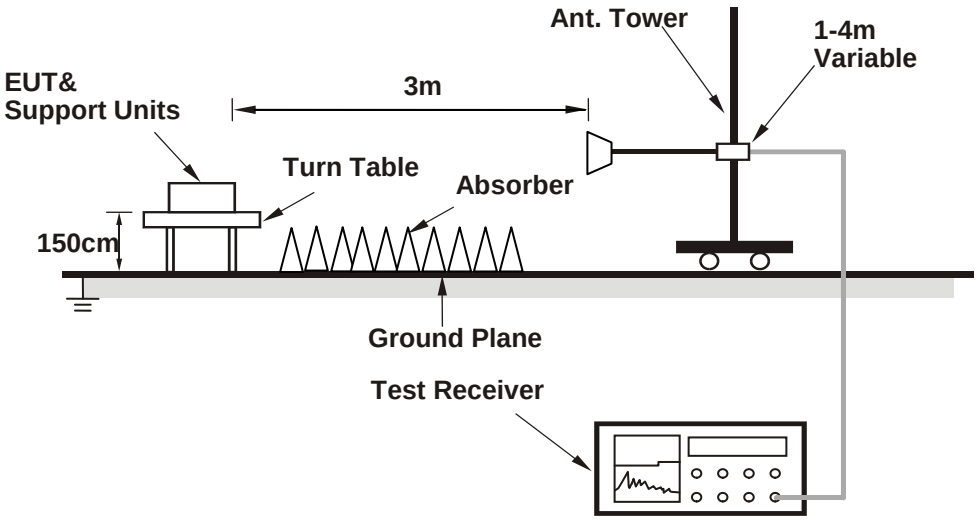
<Radiated emission below 30 MHz>



<Frequency Range below 1 GHz>



<Frequency Range above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

a. Placed the EUT on a testing table.
b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1 GHz Data：

802.11b

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	36.38	42.63	54	-17.62	26.91	4.36	37.52	132	330	Average
2389.94	47.75	54	74	-26.25	26.91	4.36	37.52	132	330	Peak
2412	101.08	107.26			26.96	4.38	37.52	132	330	Average
2412	105.17	111.35			26.96	4.38	37.52	132	330	Peak
4824	47.35	62.26	54	-6.65	31.17	6.81	52.89	111	125	Average
4824	51.65	66.56	74	-22.35	31.17	6.81	52.89	111	125	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	36.34	42.59	54	-17.66	26.91	4.36	37.52	100	195	Average
2389.94	56.06	62.31	74	-17.94	26.91	4.36	37.52	100	195	Peak
2412	97.44	103.62			26.96	4.38	37.52	100	195	Average
2412	101.5	107.68			26.96	4.38	37.52	100	195	Peak
4824	40.42	55.7	54	-13.58	30.99	6.81	53.08	222	201	Average
4824	47.59	62.87	74	-26.41	30.99	6.81	53.08	222	201	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	33.82	40.07	54	-20.18	26.91	4.36	37.52	149	331	Average
2389.94	46.9	53.25	74	-27.1	26.81	4.33	37.49	149	331	Peak
2437	102.64	108.64			27.06	4.4	37.46	149	331	Average
2437	106.59	112.59			27.06	4.4	37.46	149	331	Peak
2483.76	34.78	40.52	54	-19.22	27.15	4.43	37.32	149	331	Average
2483.76	56.63	62.37	74	-17.37	27.15	4.43	37.32	149	331	Peak
4874	46.5	61.25	54	-7.5	31.25	6.86	52.86	102	254	Average
4874	51.33	66.08	74	-22.67	31.25	6.86	52.86	102	254	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.1	35.68	41.92	54	-18.32	26.91	4.35	37.5	111	195	Average
2389.1	54.53	60.76	74	-19.47	26.91	4.36	37.5	111	195	Peak
2437	99.52	105.52			27.06	4.4	37.46	111	195	Average
2437	103.35	109.35			27.06	4.4	37.46	111	195	Peak
2489.52	35.38	41.12	54	-18.62	27.15	4.43	37.32	111	195	Average
2489.52	53.25	58.94	74	-20.75	27.2	4.43	37.32	111	195	Peak
4874	43.39	58.52	54	-10.61	31.06	6.86	53.05	222	203	Average
4874	48.01	63.14	74	-25.99	31.06	6.86	53.05	222	203	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	101.11	106.99			27.1	4.41	37.39	168	330	Average
2462	105.06	110.94			27.1	4.41	37.39	168	330	Peak
2483.52	36.17	41.91	54	-17.83	27.15	4.43	37.32	168	330	Average
2483.52	49.22	54.96	74	-24.78	27.15	4.43	37.32	168	330	Peak
4924	38.6	53.26	54	-15.4	31.34	6.89	52.89	111	125	Average
4924	47.17	61.83	74	-26.83	31.34	6.89	52.89	111	125	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	97.41	103.29			27.1	4.41	37.39	109	193	Average
2462	101.41	107.29			27.1	4.41	37.39	109	193	Peak
2488	35.28	40.97	54	-18.72	27.2	4.43	37.32	109	193	Average
2488	50.8	56.41	74	-23.2	27.2	4.44	37.25	109	193	Peak
4924	37.63	52.65	54	-16.37	31.12	6.89	53.03	222	145	Average
4924	45.57	60.59	74	-28.43	31.12	6.89	53.03	222	145	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.

802.11g

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	39.17	45.42	54	-14.83	26.91	4.36	37.52	132	330	Average
2389.94	56.48	62.71	74	-17.52	26.91	4.36	37.5	132	330	Peak
2412	93.41	99.59			26.96	4.38	37.52	132	330	Average
2412	102.69	108.87			26.96	4.38	37.52	132	330	Peak
4824	36.35	51.26	54	-17.65	31.17	6.81	52.89	102	201	Average
4824	46.23	61.14	74	-27.77	31.17	6.81	52.89	102	201	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	38.49	44.74	54	-15.51	26.91	4.36	37.52	100	194	Average
2389.94	55.52	61.77	74	-18.48	26.91	4.36	37.52	100	194	Peak
2412	89.4	95.58			26.96	4.38	37.52	100	194	Average
2412	99.65	105.83			26.96	4.38	37.52	100	194	Peak
4824	34.98	50.26	54	-19.02	30.99	6.81	53.08	301	201	Average
4824	44.99	60.27	74	-29.01	30.99	6.81	53.08	301	201	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	33.58	39.83	54	-20.42	26.91	4.36	37.52	130	331	Average
2389.94	46.98	53.27	74	-27.02	26.86	4.35	37.5	130	331	Peak
2437	96.23	102.23			27.06	4.4	37.46	130	331	Average
2437	106.64	112.64			27.06	4.4	37.46	130	331	Peak
2483.68	34.66	40.4	54	-19.34	27.15	4.43	37.32	130	331	Average
2483.68	56.19	61.93	74	-17.81	27.15	4.43	37.32	130	331	Peak
4874	38.5	53.25	54	-15.5	31.25	6.86	52.86	111	125	Average
4874	49.22	63.97	74	-24.78	31.25	6.86	52.86	111	125	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2383.36	35.43	41.72	54	-18.57	26.86	4.35	37.5	110	193	Average
2383.36	51.73	58.09	74	-22.27	26.81	4.32	37.49	110	193	Peak
2437	92.75	98.75			27.06	4.4	37.46	110	193	Average
2437	103.49	109.49			27.06	4.4	37.46	110	193	Peak
2485	35.79	41.53	54	-18.21	27.15	4.43	37.32	110	193	Average
2485	51.72	57.46	74	-22.28	27.15	4.43	37.32	110	193	Peak
4874	36.12	51.25	54	-17.88	31.06	6.86	53.05	111	321	Average
4874	46.11	61.24	74	-27.89	31.06	6.86	53.05	111	321	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	95.03	100.91			27.1	4.41	37.39	129	331	Average
2462	105.39	111.27			27.1	4.41	37.39	129	331	Peak
2483.52	41.4	47.14	54	-12.6	27.15	4.43	37.32	129	331	Average
2483.52	55.85	61.59	74	-18.15	27.15	4.43	37.32	129	331	Peak
4924	38.37	53.03	54	-15.63	31.34	6.89	52.89	201	122	Average
4924	48.39	63.05	74	-25.61	31.34	6.89	52.89	201	122	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	91.72	97.6			27.1	4.41	37.39	108	192	Average
2462	101.33	107.21			27.1	4.41	37.39	108	192	Peak
2483.52	38.83	44.57	54	-15.17	27.15	4.43	37.32	108	192	Average
2483.52	52.78	58.52	74	-21.22	27.15	4.43	37.32	108	192	Peak
4924	37.22	52.24	54	-16.78	31.12	6.89	53.03	132	201	Average
4924	46.73	61.75	74	-27.27	31.12	6.89	53.03	132	201	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	39.4	45.65	54	-14.6	26.91	4.36	37.52	168	331	Average
2389.94	57.07	63.3	74	-16.93	26.91	4.36	37.5	168	331	Peak
2412	92.08	98.26			26.96	4.38	37.52	168	331	Average
2412	102.2	108.38			26.96	4.38	37.52	168	331	Peak
4824	36.05	50.96	54	-17.95	31.17	6.81	52.89	201	235	Average
4824	46.04	60.95	74	-27.96	31.17	6.81	52.89	201	235	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	39.02	45.27	54	-14.98	26.91	4.36	37.52	112	193	Average
2389.94	56.57	62.82	74	-17.43	26.91	4.36	37.52	112	193	Peak
2412	88.49	94.67			26.96	4.38	37.52	112	193	Average
2412	99.13	105.31			26.96	4.38	37.52	112	193	Peak
4824	35.58	50.86	54	-18.42	30.99	6.81	53.08	302	201	Average
4824	45.43	60.71	74	-28.57	30.99	6.81	53.08	302	201	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	33.76	40.01	54	-20.24	26.91	4.36	37.52	150	331	Average
2389.94	47.27	53.56	74	-26.73	26.86	4.35	37.5	150	331	Peak
2437	96.34	102.34			27.06	4.4	37.46	150	331	Average
2437	106.47	112.47			27.06	4.4	37.46	150	331	Peak
2483.6	34.67	40.41	54	-19.33	27.15	4.43	37.32	150	331	Average
2483.6	47.58	53.32	74	-26.42	27.15	4.43	37.32	150	331	Peak
4874	39.23	53.98	54	-14.77	31.25	6.86	52.86	111	147	Average
4874	49	63.75	74	-25	31.25	6.86	52.86	111	147	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.8	35.38	41.79	54	-18.62	26.77	4.31	37.49	111	195	Average
2389.8	55.29	61.54	74	-18.71	26.91	4.36	37.52	111	195	Peak
2437	92.36	98.36			27.06	4.4	37.46	111	195	Average
2437	103.02	109.02			27.06	4.4	37.46	111	195	Peak
2483.84	35.52	41.26	54	-18.48	27.15	4.43	37.32	111	195	Average
2483.84	50.37	56.11	74	-23.63	27.15	4.43	37.32	111	195	Peak
4874	37.23	52.36	54	-16.77	31.06	6.86	53.05	222	203	Average
4874	47.47	62.6	74	-26.53	31.06	6.86	53.05	222	203	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	91.59	97.47			27.1	4.41	37.39	146	333	Average
2462	101.74	107.62			27.1	4.41	37.39	146	333	Peak
2483.52	41.22	46.96	54	-12.78	27.15	4.43	37.32	146	333	Average
2483.52	57.96	63.7	74	-16.04	27.15	4.43	37.32	146	333	Peak
4924	36.6	51.26	54	-17.4	31.34	6.89	52.89	111	125	Average
4924	46.72	61.38	74	-27.28	31.34	6.89	52.89	111	125	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	87.36	93.24			27.1	4.41	37.39	107	194	Average
2462	97.63	103.51			27.1	4.41	37.39	107	194	Peak
2483.52	38.21	43.95	54	-15.79	27.15	4.43	37.32	107	194	Average
2483.52	54.99	60.73	74	-19.01	27.15	4.43	37.32	107	194	Peak
4924	36.23	51.25	54	-17.77	31.12	6.89	53.03	201	111	Average
4924	46.24	61.26	74	-27.76	31.12	6.89	53.03	201	111	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 3	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	35.89	42.14	54	-18.11	26.91	4.36	37.52	130	329	Average
2389.94	49.87	56.12	74	-24.13	26.91	4.36	37.52	130	329	Peak
2422	88.47	94.53			27.01	4.39	37.46	130	329	Average
2422	98	104.06			27.01	4.39	37.46	130	329	Peak
2485.24	36.06	41.8	54	-17.94	27.15	4.43	37.32	130	329	Average
2485.24	49.17	54.91	74	-24.83	27.15	4.43	37.32	130	329	Peak
4844	35.41	50.26	54	-18.59	31.2	6.83	52.88	111	325	Average
4844	45.17	60.02	74	-28.83	31.2	6.83	52.88	111	325	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	37.75	44	54	-16.25	26.91	4.36	37.52	126	193	Average
2389.94	54.82	61.07	74	-19.18	26.91	4.36	37.52	126	193	Peak
2422	84.96	91.02			27.01	4.39	37.46	126	193	Average
2422	95.25	101.31			27.01	4.39	37.46	126	193	Peak
2484.36	35.82	41.56	54	-18.18	27.15	4.43	37.32	126	193	Average
2484.36	50.63	56.37	74	-23.37	27.15	4.43	37.32	126	193	Peak
4844	34.9	50.12	54	-19.1	31.01	6.83	53.06	200	214	Average
4844	45.18	60.4	74	-28.82	31.01	6.83	53.06	200	214	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2422 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	36.06	42.31	54	-17.94	26.91	4.36	37.52	148	330	Average
2389.94	49.85	56.08	74	-24.15	26.91	4.36	37.5	148	330	Peak
2437	91.24	97.24			27.06	4.4	37.46	148	330	Average
2437	101.89	107.89			27.06	4.4	37.46	148	330	Peak
2483.52	39.39	45.13	54	-14.61	27.15	4.43	37.32	148	330	Average
2483.52	55.69	61.43	74	-18.31	27.15	4.43	37.32	148	330	Peak
4874	37.21	51.96	54	-16.79	31.25	6.86	52.86	111	201	Average
4874	46.89	61.64	74	-27.11	31.25	6.86	52.86	111	201	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2388.82	36.91	43.14	54	-17.09	26.91	4.36	37.5	127	193	Average
2388.82	53.29	59.64	74	-20.71	26.81	4.33	37.49	127	193	Peak
2437	83.54	89.54			27.06	4.4	37.46	127	193	Average
2437	98.01	104.01			27.06	4.4	37.46	127	193	Peak
2483.52	36.63	42.37	54	-17.37	27.15	4.43	37.32	127	193	Average
2483.52	51.27	57.01	74	-22.73	27.15	4.43	37.32	127	193	Peak
4874	35.12	50.25	54	-18.88	31.06	6.86	53.05	202	212	Average
4874	45.05	60.18	74	-28.95	31.06	6.86	53.05	202	212	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 9	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Getaz Yang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.94	34.17	40.42	54	-19.83	26.91	4.36	37.52	165	331	Average
2389.94	46.86	53.22	74	-27.14	26.81	4.32	37.49	165	331	Peak
2452	88.83	94.75			27.06	4.41	37.39	165	331	Average
2452	98.48	104.4			27.06	4.41	37.39	165	331	Peak
2483.52	41.11	46.85	54	-12.89	27.15	4.43	37.32	165	331	Average
2483.52	58.52	64.26	74	-15.48	27.15	4.43	37.32	165	331	Peak
4904	36.13	50.79	54	-17.87	31.31	6.88	52.85	302	251	Average
4904	46.13	60.79	74	-27.87	31.31	6.88	52.85	302	251	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2364.74	35.73	42.09	54	-18.27	26.81	4.33	37.5	125	193	Average
2364.74	52.74	59.14	74	-21.26	26.77	4.3	37.47	125	193	Peak
2452	82.66	88.58			27.06	4.41	37.39	125	193	Average
2452	93.51	99.43			27.06	4.41	37.39	125	193	Peak
2483.52	37.97	43.71	54	-16.03	27.15	4.43	37.32	125	193	Average
2483.52	54.43	60.17	74	-19.57	27.15	4.43	37.32	125	193	Peak
4904	35.53	50.58	54	-18.47	31.1	6.88	53.03	251	214	Average
4904	45.1	60.15	74	-28.9	31.1	6.88	53.03	251	214	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2452 MHz: Fundamental frequency.

9 kHz ~ 30 MHz Data:

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

802.11b

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Jisyong Wang

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
134.76	22.94	41.78	43.5	-20.56	12.01	0.91	31.76	125	147	Peak
189.08	23.76	44.16	43.5	-19.74	10.12	1.17	31.69	201	145	Peak
300.63	28.54	45.78	46	-17.46	12.96	1.65	31.85	251	154	Peak
351.07	27	42.8	46	-19	14.17	1.88	31.85	222	321	Peak
431.58	26.49	40.34	46	-19.51	15.96	2.2	32.01	154	185	Peak
809.88	30.16	35.55	46	-15.84	22.35	3.71	31.45	102	254	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
32.91	25.19	43.35	40	-14.81	12.47	0.46	31.09	222	285	Peak
134.76	20.77	39.61	43.5	-22.73	12.01	0.91	31.76	325	214	Peak
189.08	25.69	46.09	43.5	-17.81	10.12	1.17	31.69	111	152	Peak
351.07	25.55	41.35	46	-20.45	14.17	1.88	31.85	201	265	Peak
431.58	27.93	41.78	46	-18.07	15.96	2.2	32.01	111	325	Peak
513.06	28.48	39.87	46	-17.52	17.62	2.57	31.58	320	256	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

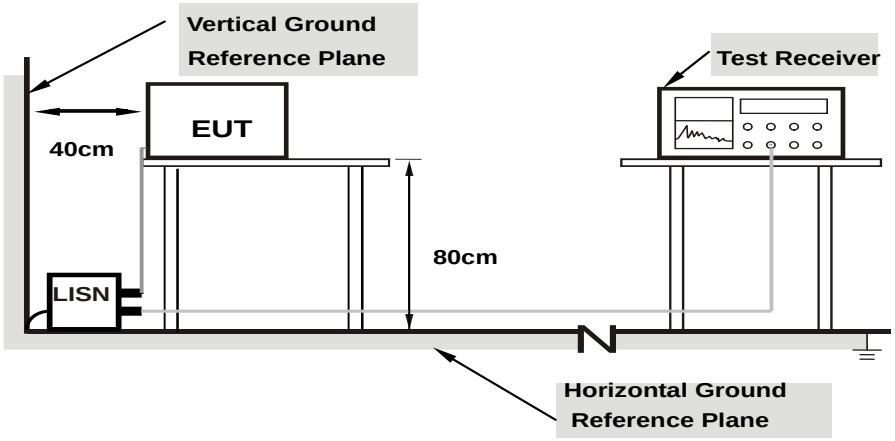
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

a. Placed the EUT on a testing table.
b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

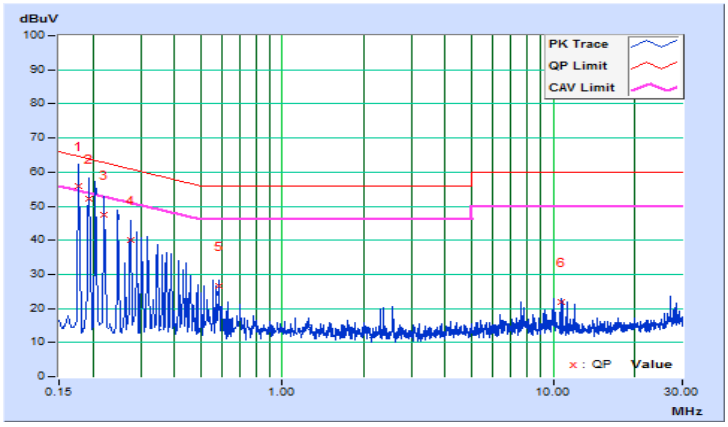
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Getaz Yang	Test Date	2017/12/19

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17737	10.39	45.50	14.80	55.89	25.19	64.61	54.61	-8.72	-29.42
2	0.19301	10.39	41.77	11.60	52.16	21.99	63.91	53.91	-11.75	-31.92
3	0.22038	10.40	37.18	7.95	47.58	18.35	62.80	52.80	-15.22	-34.45
4	0.27512	10.40	29.74	3.03	40.14	13.43	60.96	50.96	-20.82	-37.53
5	0.58401	10.41	16.09	2.38	26.50	12.79	56.00	46.00	-29.50	-33.21
6	10.71873	10.89	10.97	10.07	21.86	20.96	60.00	50.00	-38.14	-29.04

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

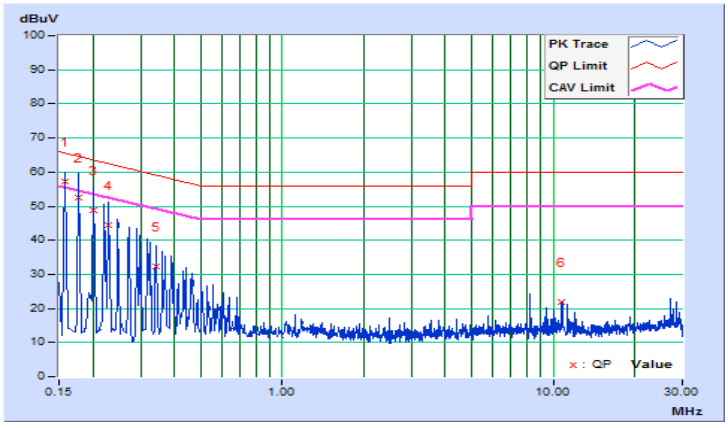


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Getaz Yang	Test Date	2017/12/19

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15782	10.16	47.13	16.22	57.29	26.38	65.58	55.58	-8.29	-29.20
2	0.17737	10.16	42.50	12.23	52.66	22.39	64.61	54.61	-11.95	-32.22
3	0.20084	10.16	38.71	9.09	48.87	19.25	63.58	53.58	-14.71	-34.33
4	0.22820	10.16	34.23	5.81	44.39	15.97	62.51	52.51	-18.12	-36.54
5	0.34159	10.17	22.14	-0.34	32.31	9.83	59.16	49.16	-26.85	-39.33
6	10.71873	10.61	11.17	10.37	21.78	20.98	60.00	50.00	-38.22	-29.02

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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